

# 2017 L.G. Hanscom Field Environmental Status & Planning Report (ESPR)



## Technical Workshop 2

June 6, 2019  
6:00 PM EST  
L.G. Hanscom Field

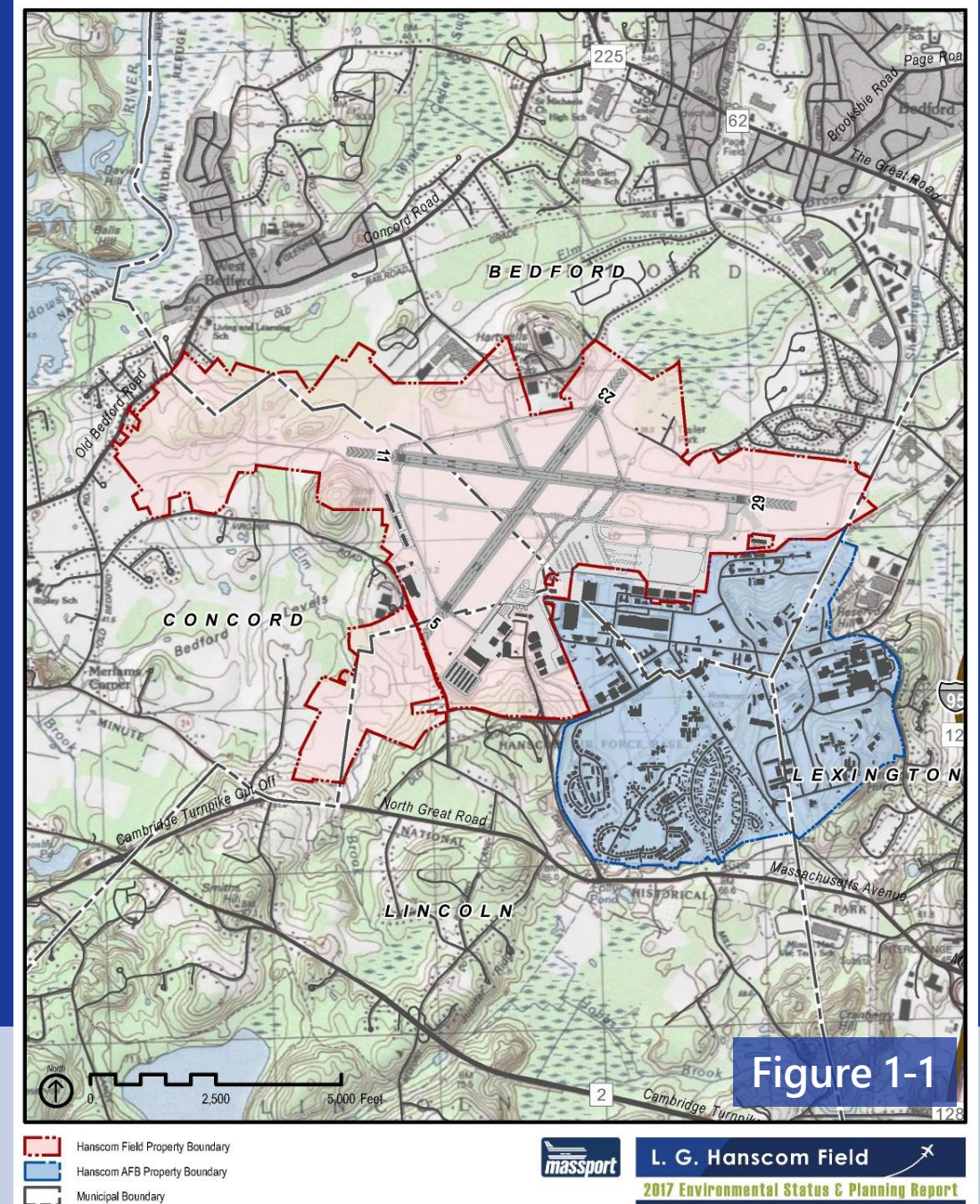


L.G. Hanscom Field 2017 ESPR



# L.G. Hanscom Field

- New England's premier, full service general aviation (GA) airport
- 1,300 acres of land
- Located within: Bedford, Concord, Lexington, Lincoln
- Historic context:
  - 1974 Massport assumed ownership
  - 1978 Master Plan
  - 1980 Regulations and Noise Rules





# Role in Regional Transportation

- Serves as GA reliever for Boston Logan International Airport (Logan Airport)
- Leads the region in terms of overall GA activity
- Role is consistent with that defined in the 1978 Master Plan which restricts commercial airline service at the airport.
- No scheduled commercial passenger service since 2012

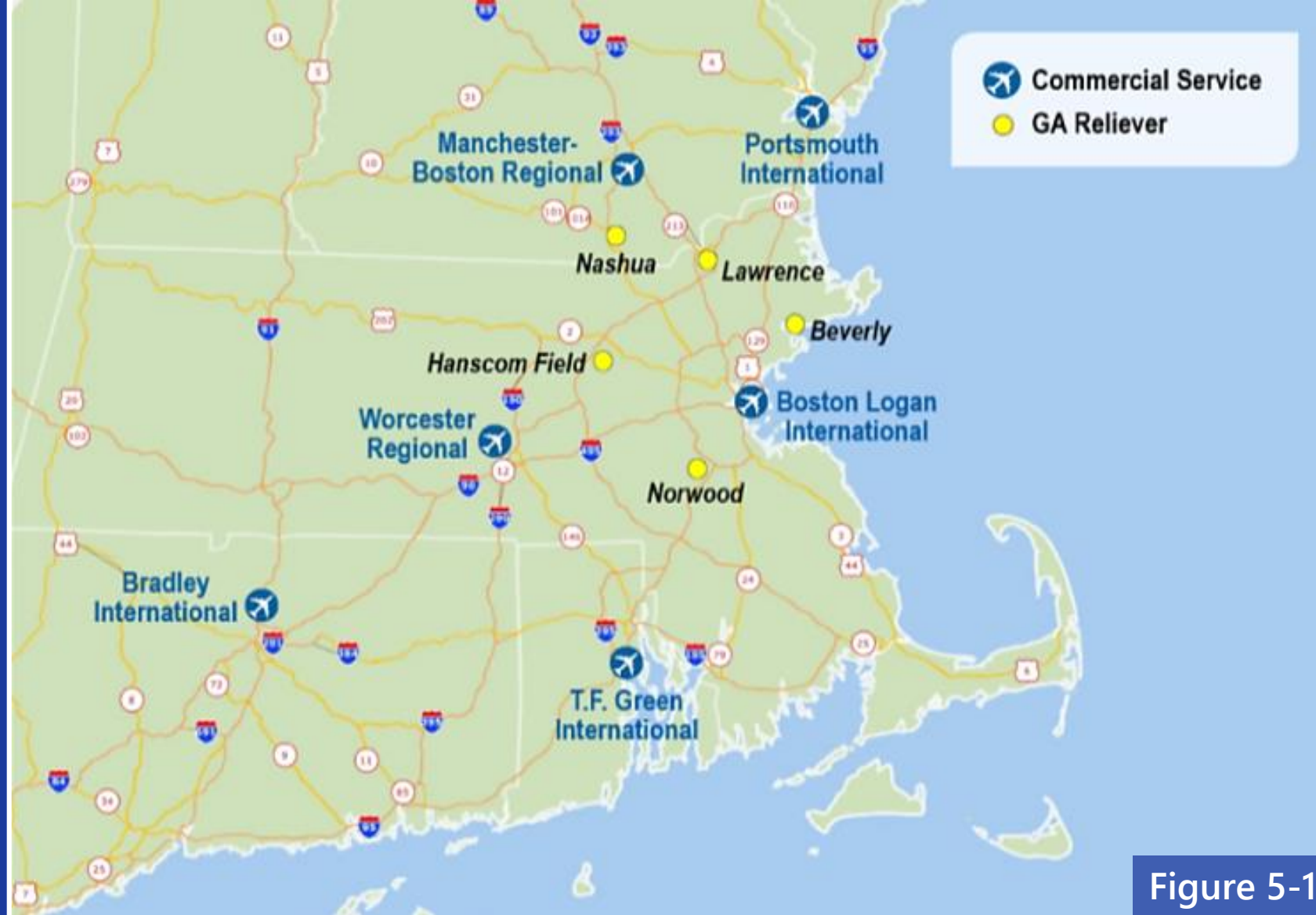
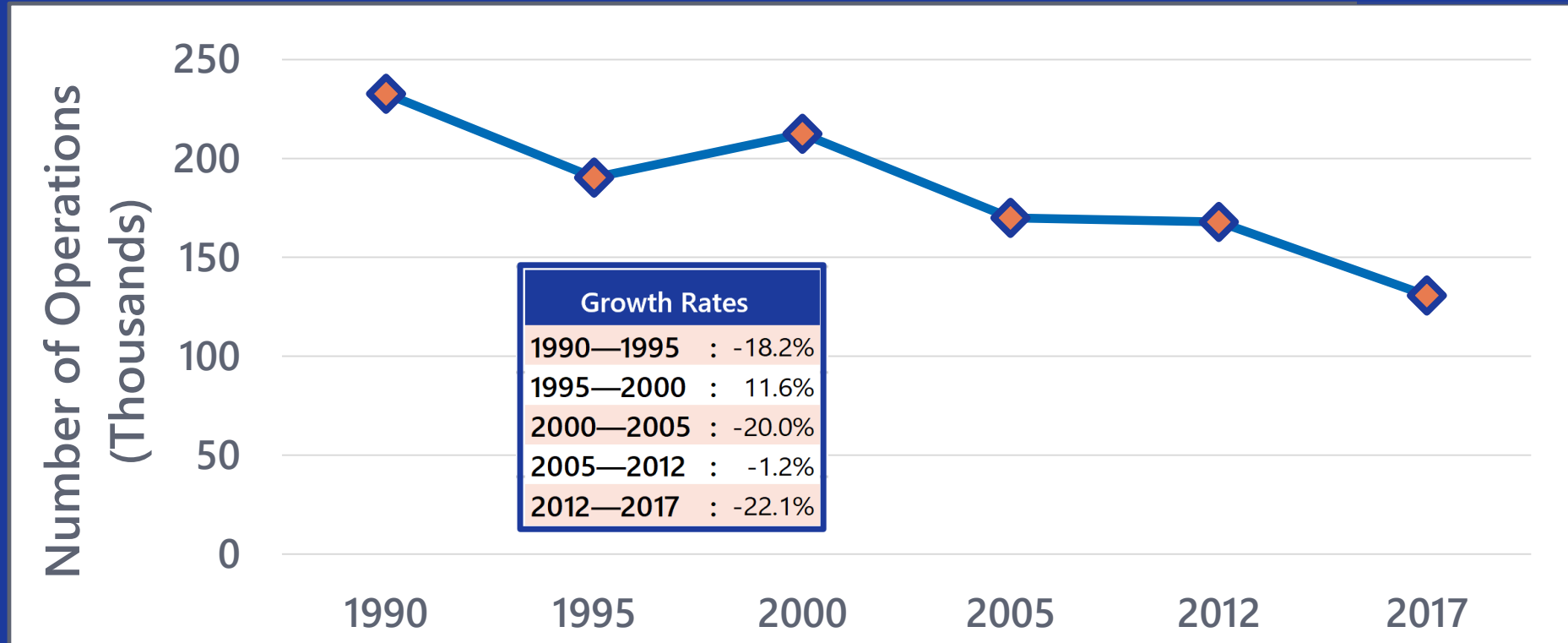


Figure 5-1

L.G. Hanscom Field 2017 ESPR

# Aircraft Operations at Hanscom Field Have Decreased Over Time

Figure 8-5



# ESPR Purpose

- Provides a status report on activity levels and environmental conditions
- Presents and evaluates potential cumulative environmental effects of future scenarios
- Serves as planning tool for assessing and reviewing changes
- Does not replace need for individual project reviews



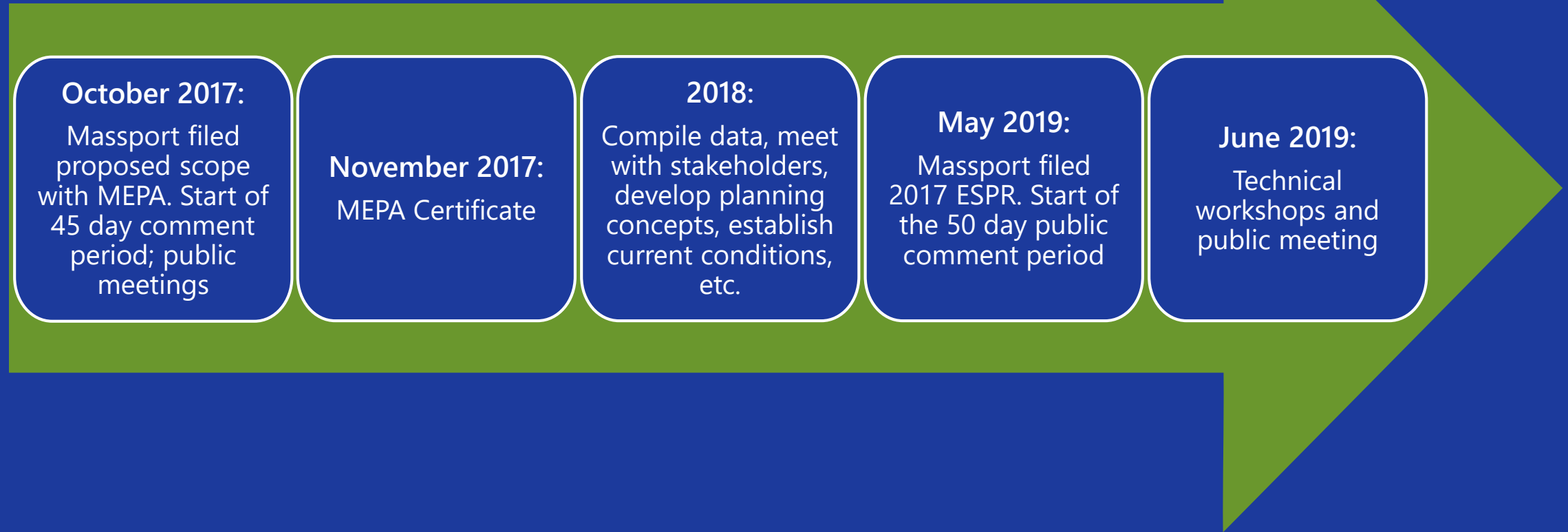


# ESPR Scope

- Secretary of the Executive Office of Energy and Environmental Affairs (EEA) issued scope Certificate November 16, 2017
- Report on 2017 current conditions and compare to historical data from prior ESPRs
- Evaluate and assess cumulative environmental effects of future scenarios for planning years 2025 and 2035 based on forecasts of airport activity levels
- 2025 and 2035 scenarios represent estimates of what *could* occur (not necessarily what will occur) in the future using certain planning assumptions



# ESPR Process



# ESPR Organization

Chapter 1:  
Executive Summary

Chapter 2:  
Airport Facilities  
and Infrastructure

Chapter 3:  
Airport Activity  
Levels

Chapter 4:  
Airport Planning

Chapter 5:  
Regional  
Transportation  
Context

Chapter 6:  
Ground  
Transportation

Chapter 7:  
Noise

Chapter 8:  
Air Quality

Chapter 9:  
Wetlands, Wildlife,  
& Water Resources

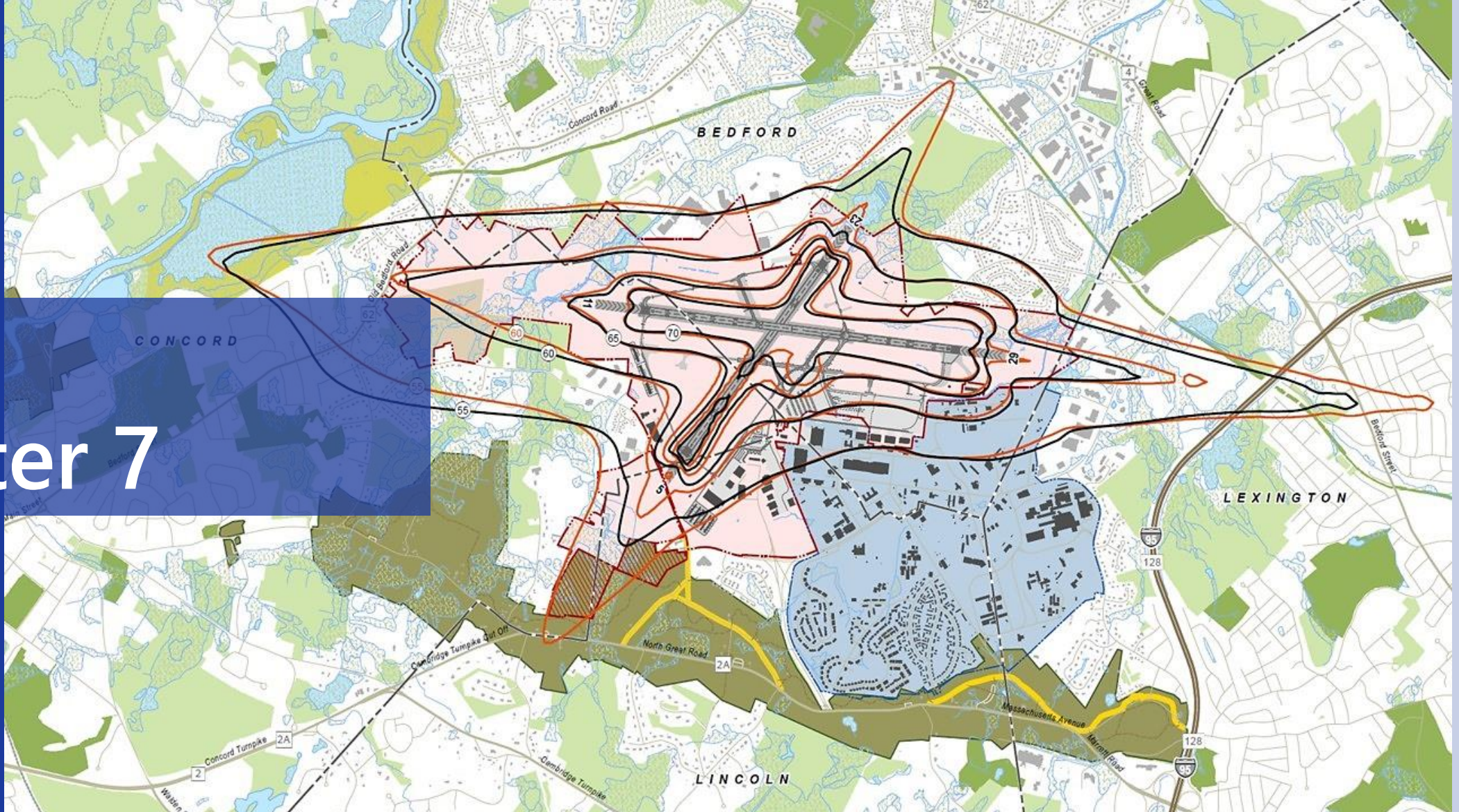
Chapter 10:  
Cultural & Historical  
Resources

Chapter 11:  
Sustainability &  
Environmental  
Management

Appendices



# Noise Chapter 7





# Noise

## Chapter 7:

- Provides background information on noise and how it is calculated (Sec. 7.2)
- Updates the status of the noise environment around Hanscom Field for 2017 conditions and for the 2025 and 2035 analysis years, including the following:
  - ⇒ Day-Night Sound Level (DNL) contours and tabular results
  - ⇒ Time Above (TA) contours and tabular results
  - ⇒ Total Noise Exposure (EXP) calculations
  - ⇒ Sound Exposure Level (SEL) contours and distribution graphs
- Reports past trends and the projections for the forecast activity levels in 2025 / 2035
- Addresses measures to reduce noise impacts from airport operations



# Key Findings

- Noise remains well below historical peaks, with the Day-Night Sound Level (DNL) 65 decibel (dB) contour entirely within Hanscom Field property.
- Comparison between year 2017 and 2012 DNL noise contours shows that overall noise levels have increased somewhat, although total operations decreased, due to:
  - ⇒ Increase in jet aircraft operations
  - ⇒ Slight increase in nighttime flights as a share of overall operations
  - ⇒ The shape of the 2017 contours reflect increased operations on Runway 5/23 due to the closure of Runway 11/29 for repaving during the month of August 2017
  - ⇒ Construction at Boston Logan International Airport caused some additional aircraft to operate out of Hanscom Field in 2017.
- Forecast increases in general aviation (GA) jet activity contribute to the projected growth in annual operations in 2035, driving a modest projected increase in overall noise levels as compared to today.





2012 and 2017 55 dB DNL Noise Contour Comparison

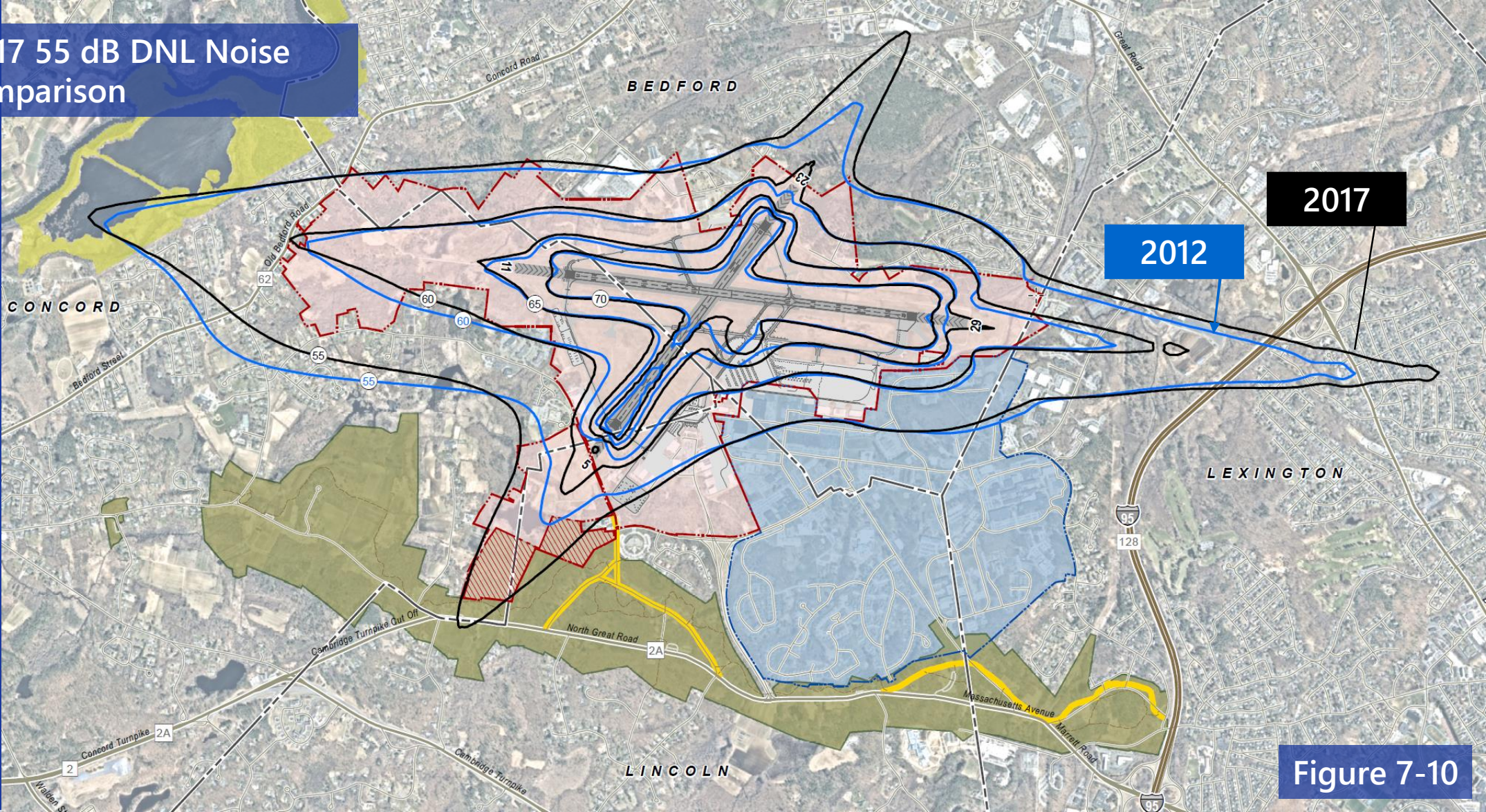


Figure 7-10

L.G. Hanscom Field 2017 ESPR





# Changes from 2012 to 2017

- The total population exposed to DNL greater than 65 dB remained at zero in 2017 (from zero in 2012), which is a decrease from 17 in 2005 (which were all in Bedford).
- In all future scenarios, there are no residents exposed to noise levels exceeding 65 dB DNL.
- No portion of the MMNHP was located within the 60 DNL contour in 2017 or in the forecasted 2025 and 2035 planning scenarios. The 2017 and forecast future 55 DNL contours do extend into MMNHP.





2012 and 2017 DNL Noise Contours  
Compared to 2025 Forecast DNL  
Noise Contours

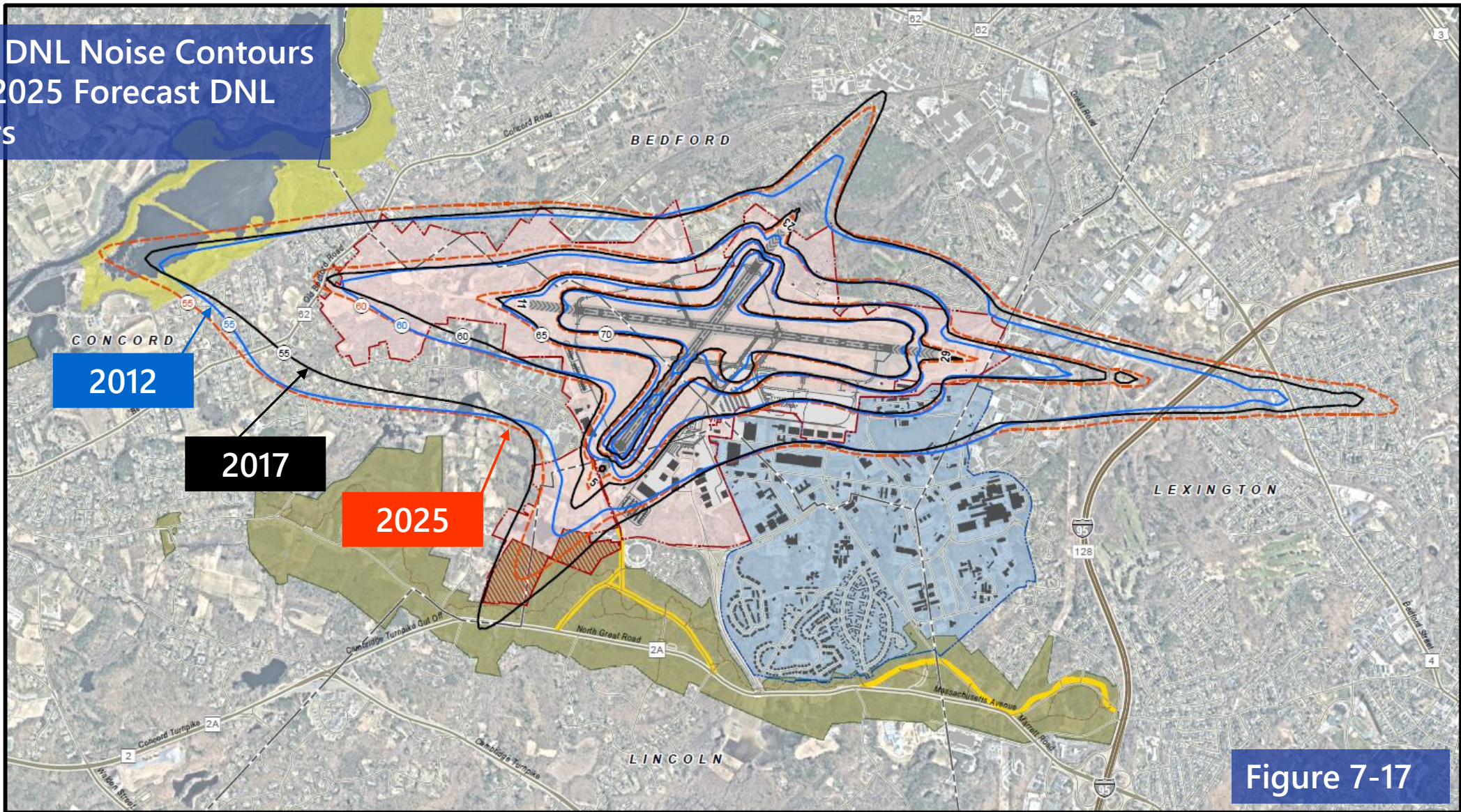


Figure 7-17





2012 and 2017 DNL Noise Contours  
Compared to 2035 Forecast DNL  
Noise Contours

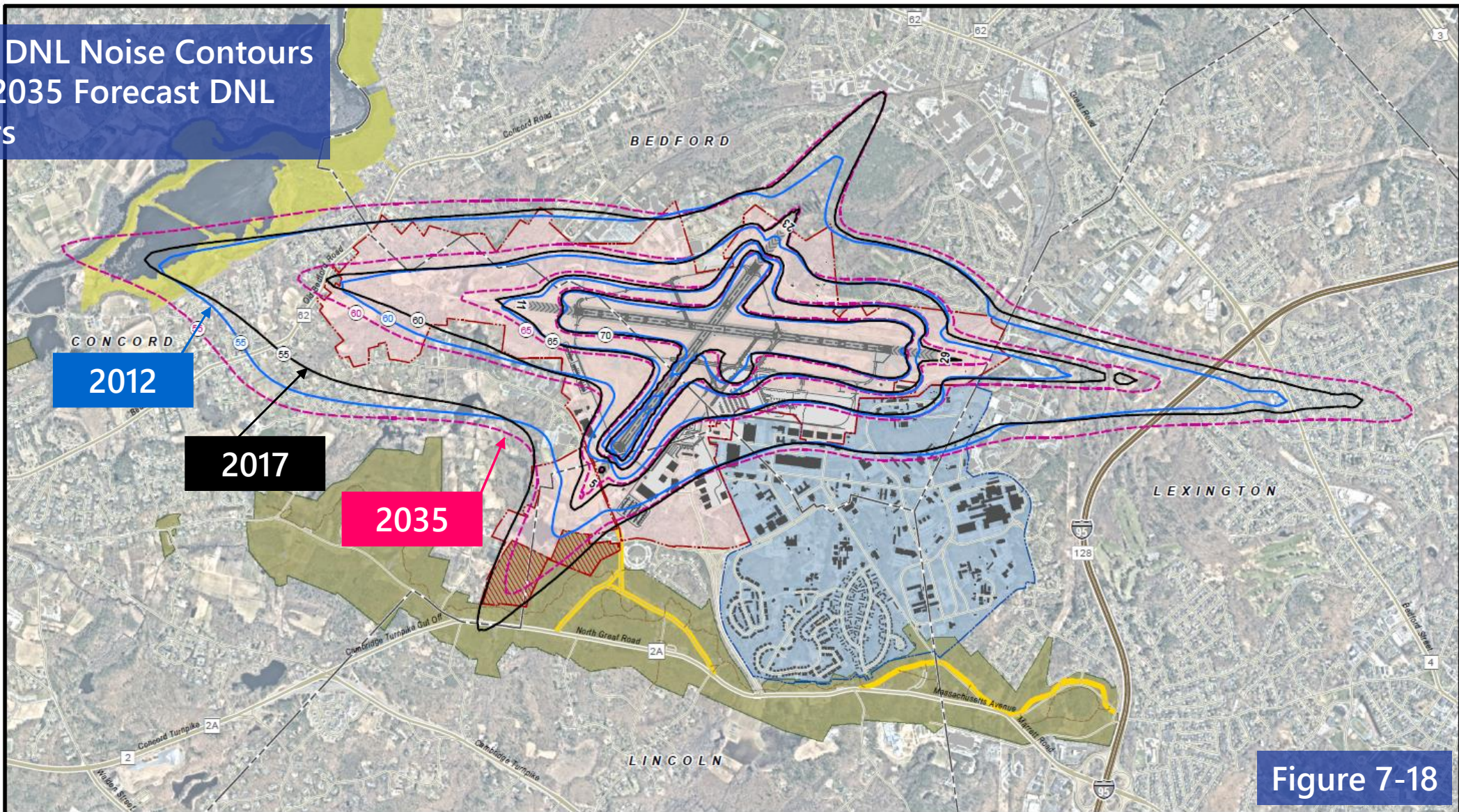


Figure 7-18





# Census Counts in DNL Contour Levels

Year/Scenario	Population <sup>1</sup>	
	65 dB or Greater <sup>2</sup>	55 dB or Greater <sup>3</sup>
2000	26	2,848
2005	17	2,953
2012	0	1,041
2017	0	1,271
2025	0	1,675
2035	0	2,047

Notes:

1. Based on the 2010 U.S. Census except for 2000 and 2005 which were computed for the *2000 and 2005 ESPRs* using the 2000 U.S. Census

2. These population estimates fall within the 65 and 70 DNL contours.

3. These population estimates include population within the 55, 60, 65, and 70 DNL contours

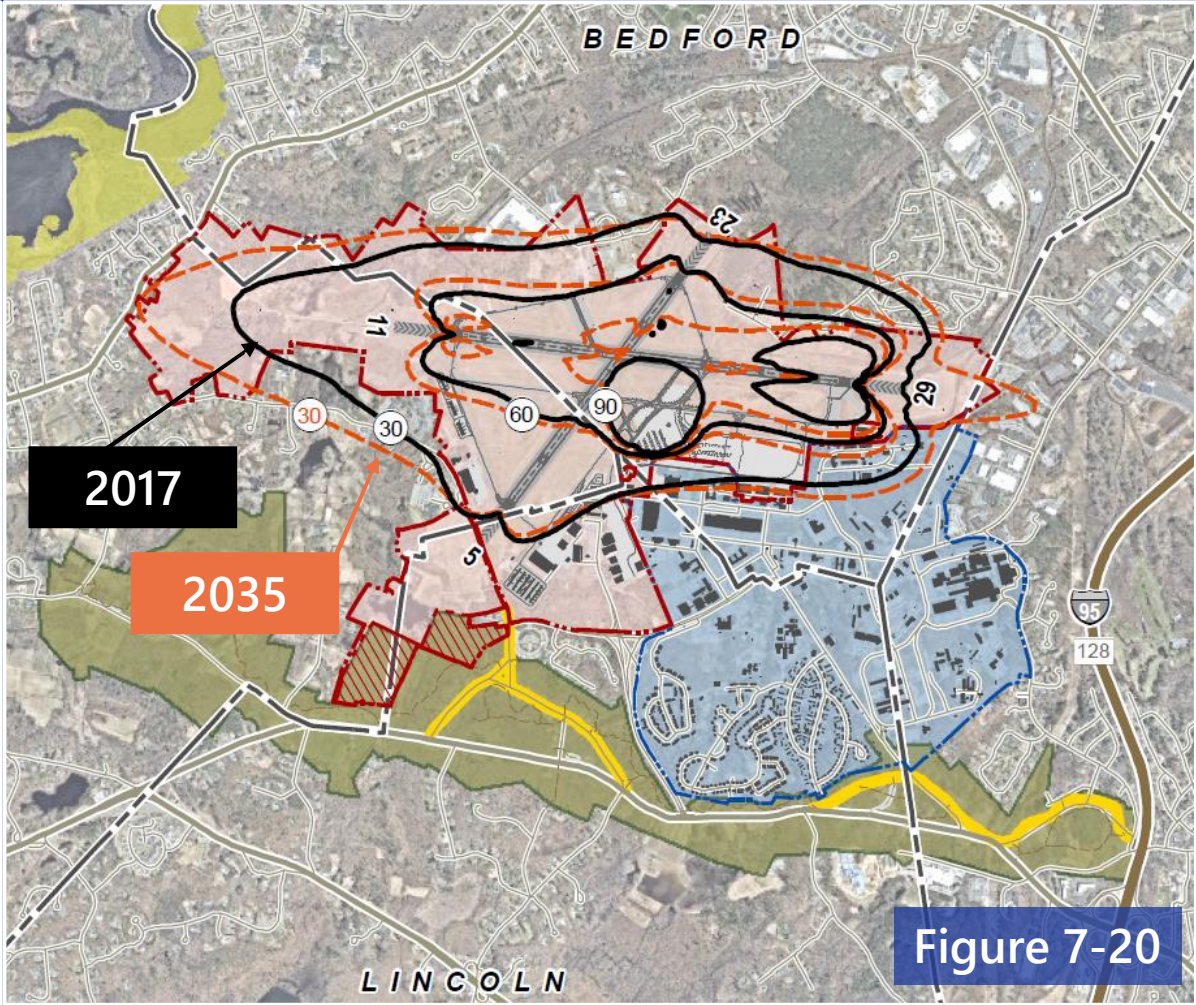
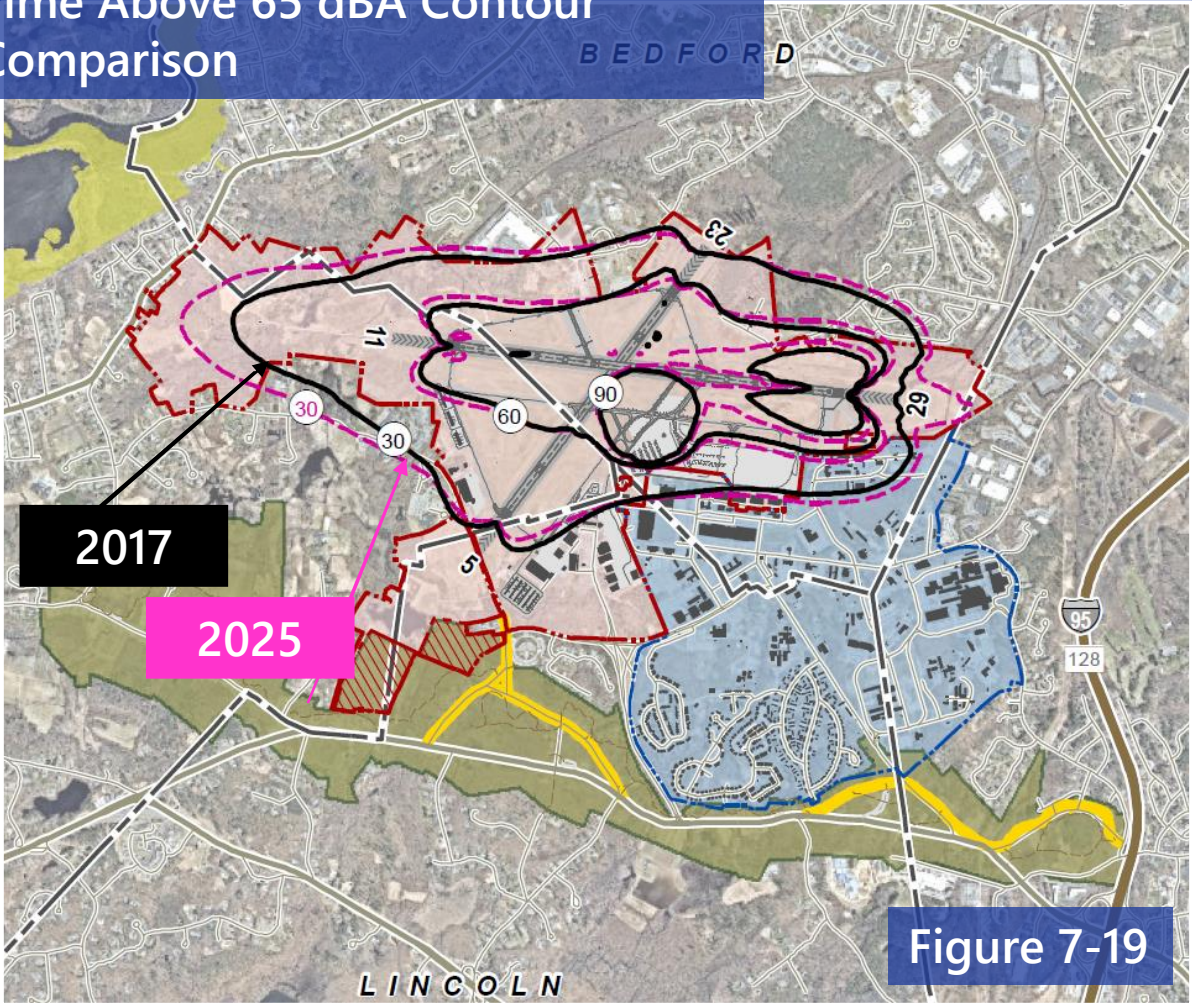
Source: HMMH 2018



L.G. Hanscom Field 2017 ESPR

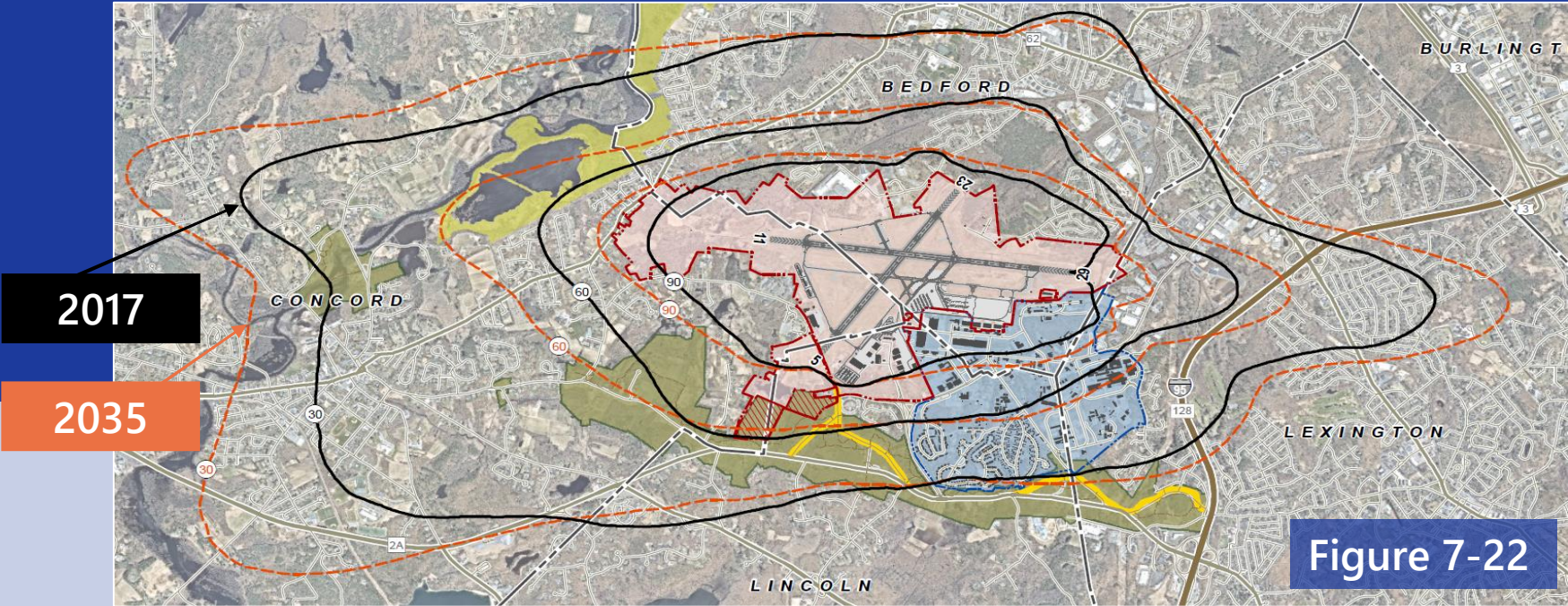
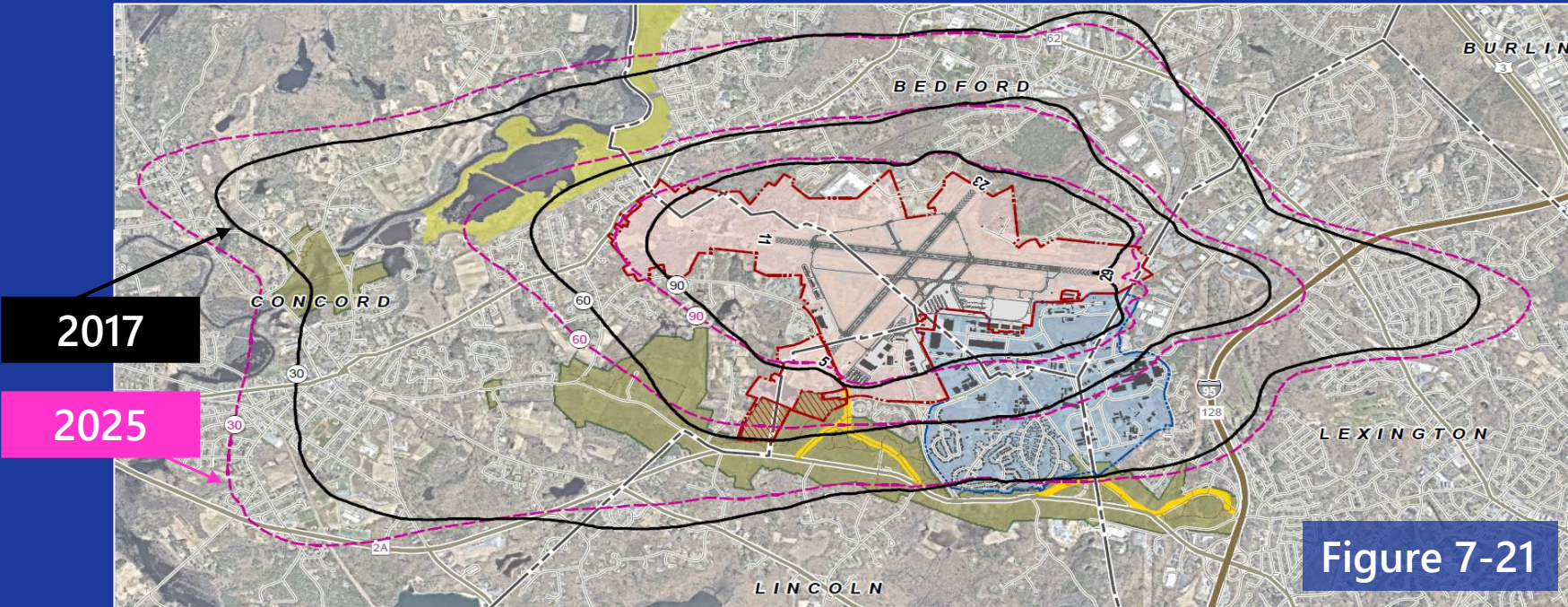


2017 and Future Forecast  
Time Above 65 dBA Contour  
Comparison





# 2017 and Future Forecast Time Above 55 dBA Contour Comparison





# Air Quality ESPR Chapter 8



# Air Quality

## Chapter 8:

- Reports on 2017 conditions and conditions in the 2025 and 2035 analysis years based on the activity levels forecast.
- Discusses regulatory framework for air emissions.
- Presents the first airport-wide Greenhouse Gas (GHG) emissions inventory for Hanscom Field, to be used as a baseline to measure and compare future GHG emissions.



# Key Findings

- Air quality in the region currently meets all National and Massachusetts Ambient Air Quality Standards (NAAQS & MAAQS) set by the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection.
- Hanscom emissions are expected to be below the NAAQS in future years at the 10 Community locations (see Section 8.4.3). Emissions associated with Hanscom Field activity continue to represent a very small fraction of regional emissions.
- Aircraft emissions decreased for lead (Pb), ozone (O<sub>3</sub>), particulate matter (PM) and sulfur oxides (SO<sub>2</sub>) between 2012 and 2017, and increased for carbon monoxide (CO) and nitrogen oxides (NO<sub>x</sub>).



# Key Findings (continued)

- Aircraft emissions of criteria pollutants and GHGs are forecasted be higher in 2025/2035 than 2017 based on a predicted growth in operations (with the exception of CO, due to changes in fleet mix).
- Based on the GHG Inventory, total carbon dioxide equivalent (CO<sub>2</sub>e) for Hanscom Field in 2017 is 23,892 metric tons (MT). Massport-controlled emissions are 5% of the total.
- Ground transportation emissions of all criteria pollutants are expected to decrease in the future year scenarios due to more efficient vehicles.
- Air quality model changed since 2012 as per FAA requirements, which resulted in some differences.
- More information on the types of emissions and regulations can be found at EPA's website.





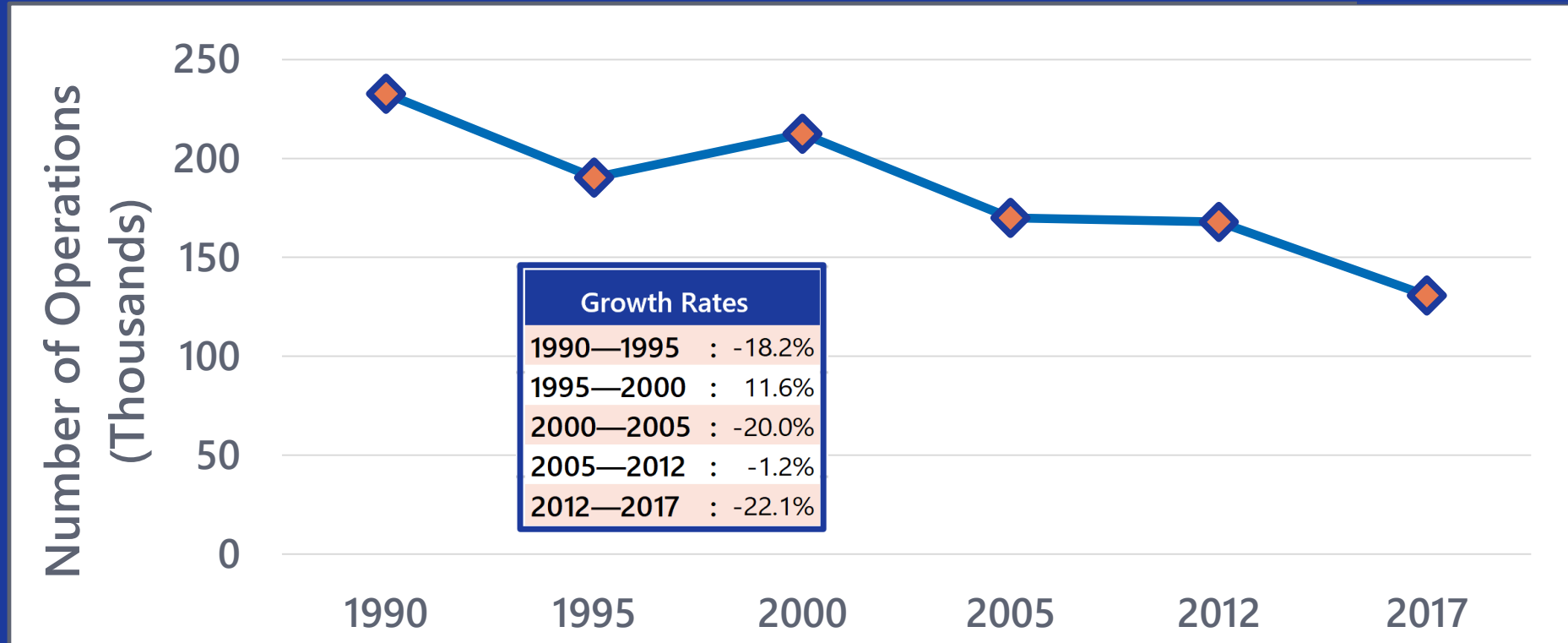
# Environmentally Beneficial Emissions Reduction Measures

- Approximately ten percent of the GSE and fleet vehicles at Hanscom Field are alternatively fueled, either by electricity or by propane (compared to eight percent in 2012).
- Any new conventional-fueled vehicle added to the Hanscom fleet in the future will have very low emissions, and will automatically comply with the low emission goals of the federal Clean Fuel Fleet Program (40 CFR Part 88)
- MPA and tenants have installed solar systems to generate on-site renewable energy, and incorporate sustainable design elements through the use of LEED building standards.



# Aircraft Operations at Hanscom Field Have Decreased Over Time

Figure 8-5





# Emissions from Aircraft Operations at Hanscom Field, 1995-2017

Year	CO	NOx	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
1995	409.2	14.9	27.9	2.3	2.3	6,728
2000	591.2	25.4	39.4	2.3	2.3	10,108
2005 (EDMS Version 5.1.4.1)	1,670.0	34.1	112.7	13.5	13.5	19,233
2012	1,123.0	31.9	80.4	9.9	9.9	16,356
2017	1,557.0	34.8	51.4	1.9	1.9	17,735
Percent Change: 2005-2012	-33%	-7%	-29%	-27%	-27%	-15.0%
Percent Change: 2012-2017	+39%	+9%	-36%	-81%	-81%	+8.4%

Note: All emissions expressed in 1,000s of kg/year



# Estimated Future Aircraft Emissions Reflect Forecasted Activity Levels and Fleet Mix Changes

## Emissions from Aircraft Operations at Hanscom Field

Year	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
2012 <sup>1</sup>	1,123.0	31.9	80.4	9.9	9.9	16,356
2017 <sup>2</sup>	1,557.0	34.8	51.4	1.9	1.9	17,734
2025	1,455.3	42.0	56.1	2.0	2.0	20,553
2035	1,444.6	48.1	61.0	2.1	2.1	23,069

### Notes:

1. EDMS was used to estimate emissions for 2012.
2. Calculations generated using AEDT version 2d for 2017 and 2025 and 2035 forecasts.
3. All emissions expressed in 1,000s of kg/year



# Emissions from Hanscom Field Vehicular Traffic Decrease from 1995-2017

Year	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
1995	30.0	3.9	2.9	0.6	0.6	-
2000	61.0	6.9	3.0	0.2	0.2	1,496
2005	36.0	4.1	1.6	0.1	0.1	1,312
2012	19.1	2.2	0.9	0.1	<0.1	1,555
2017 <sup>1</sup>	2.9	0.3	0.1	<0.1	<0.1	407
Percent Change: 2005 to 2012	-47%	-46%	-46%	-29%	-40%	+19%
Percent Change: 2012 to 2017	-85%	-86%	-92%	-90%	-83%	-74%

Note: All emissions expressed in 1,000s of kg/year

# Forecasted Future Vehicular Emissions Expected to Decrease in 2025/2035

## Emissions from Hanscom Field Vehicular Traffic

Year	CO	NO <sub>x</sub>	VOC	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
2012	19.1	2.2	0.9	0.1	<0.1	1,555
2017	2.9	0.3	0.1	<0.1	<0.1	407
2025	2.8	0.2	<0.1	<0.1	<0.1	457
2035	1.9	0.1	<0.1	<0.1	<0.1	436

Notes:

1. Emissions levels for CO, NO<sub>x</sub>, VOC and PM are calculated to one decimal place. All emissions expressed in 1,000s of kg/year

Source: HMMH, 2018.



# Greenhouse Gas (GHG) Emissions Sources and Categories

Massport Emission Ownership Category	Source	GHG Protocol Scope
Category 1 – Massport Owned and/or Controlled	Massport Fleet Vehicle	Scope 1
	On-airport Ground Transportation	Scope 1
	Off-airport Employee Vehicle Trips, including employee commuting	Scope 3
	Ground Service Equipment/Auxiliary Power Units	Scope 1
	Stationary Sources (generators, boilers, etc.)	Scope 1
	Electrical Consumption	Scope 2
Category 2 - Tenant Owned and/or Controlled (includes airlines, government, aircraft operators, fixed-based operators, etc.)	Aircraft (on-ground, within the LTO up to 3,000 feet)	Scope 3
	Auxiliary Power Units/Ground Support Equipment	Scope 3
	Off-airport Employee Vehicle Trips, including employee commuting	Scope 3
	Stationary Sources (including generators, boilers, etc.)	Scope 3
	Electrical Consumption	Scope 2
Category 3 – Public Owned & Controlled	Off-airport Vehicle Trips (Includes private automobiles, taxis, limousines, buses, shuttle vans, etc., operating on the off-airport roadway network)	Scope 3



# Analysis of Future Greenhouse Gas Emissions

Figure 8-9

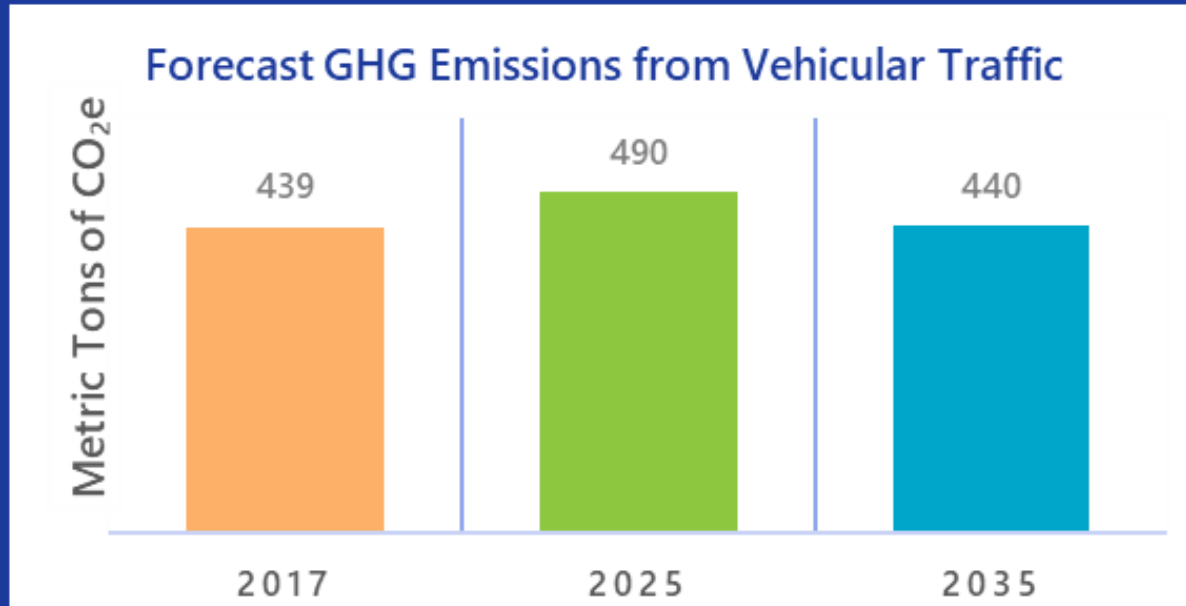
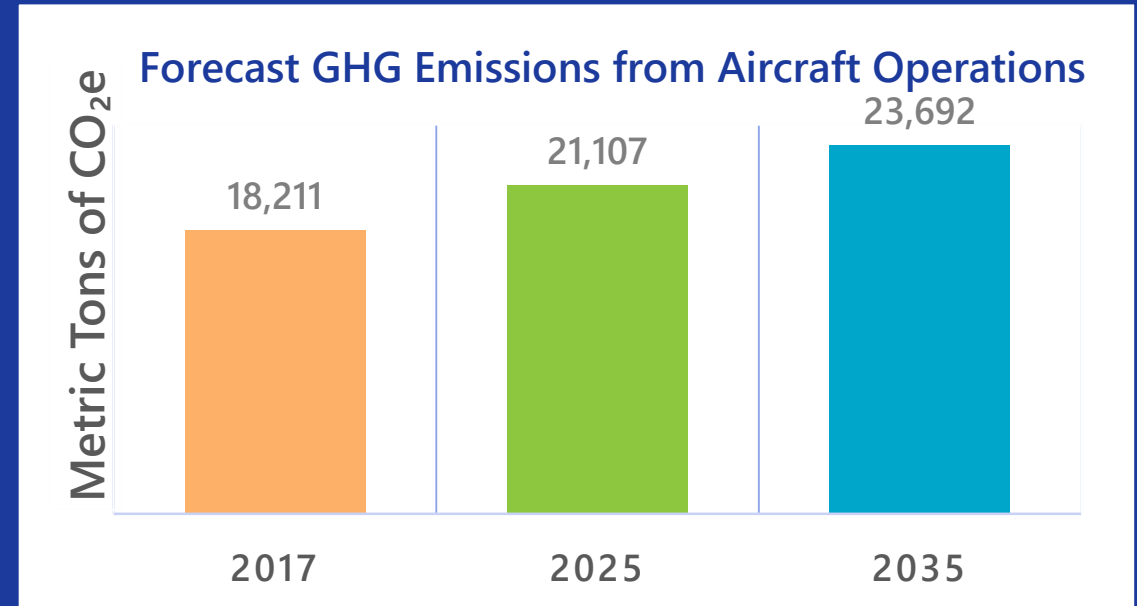


Figure 8-10





# Wetlands, Wildlife, and Water Resources ESPR Chapter 9



# Wetlands, Wildlife and Water Resources

## Chapter 9:

- Describes wetlands, wildlife and water resources on and around Hanscom Field, including:
  - Wetlands and vernal pools
  - Vegetation and wildlife
  - Water resources
- Presents information regarding stormwater management, including the National Pollution Discharge Elimination System (NPDES) and Stormwater Pollution Prevention Plan (SWPPP).
- Includes analysis of future scenarios.





# Key Findings

- Wetland areas largely unchanged since 2012; four new delineations supporting facility/infrastructure projects
- Vegetation Management Plan (VMP) updated to cover 2014-2018
- Areas of the North Airfield no longer designated as critical rare species habitat
- State-threatened Blanding's Turtle and Species of Concern Wood Turtle were added to the MA Division of Fisheries & Wildlife consultation response
- Northern Long-eared Bat was listed as threatened under the federal Endangered Species Act on April 2, 2015



# Key Findings (continued)

- All future planning concepts would be located in areas more than one-half mile from certified vernal pools
- Indirect impacts are not expected to disrupt special habitats since these species currently occupy an active airport environment with a managed (regularly-mowed) airfield
- Water quality impacts will be avoided through the continued adherence to the MSGP and implementation of the SWPPP
- Every effort is made to avoid, minimize, and mitigate potential wetland impacts for future Massport or tenant projects.





# Wetlands

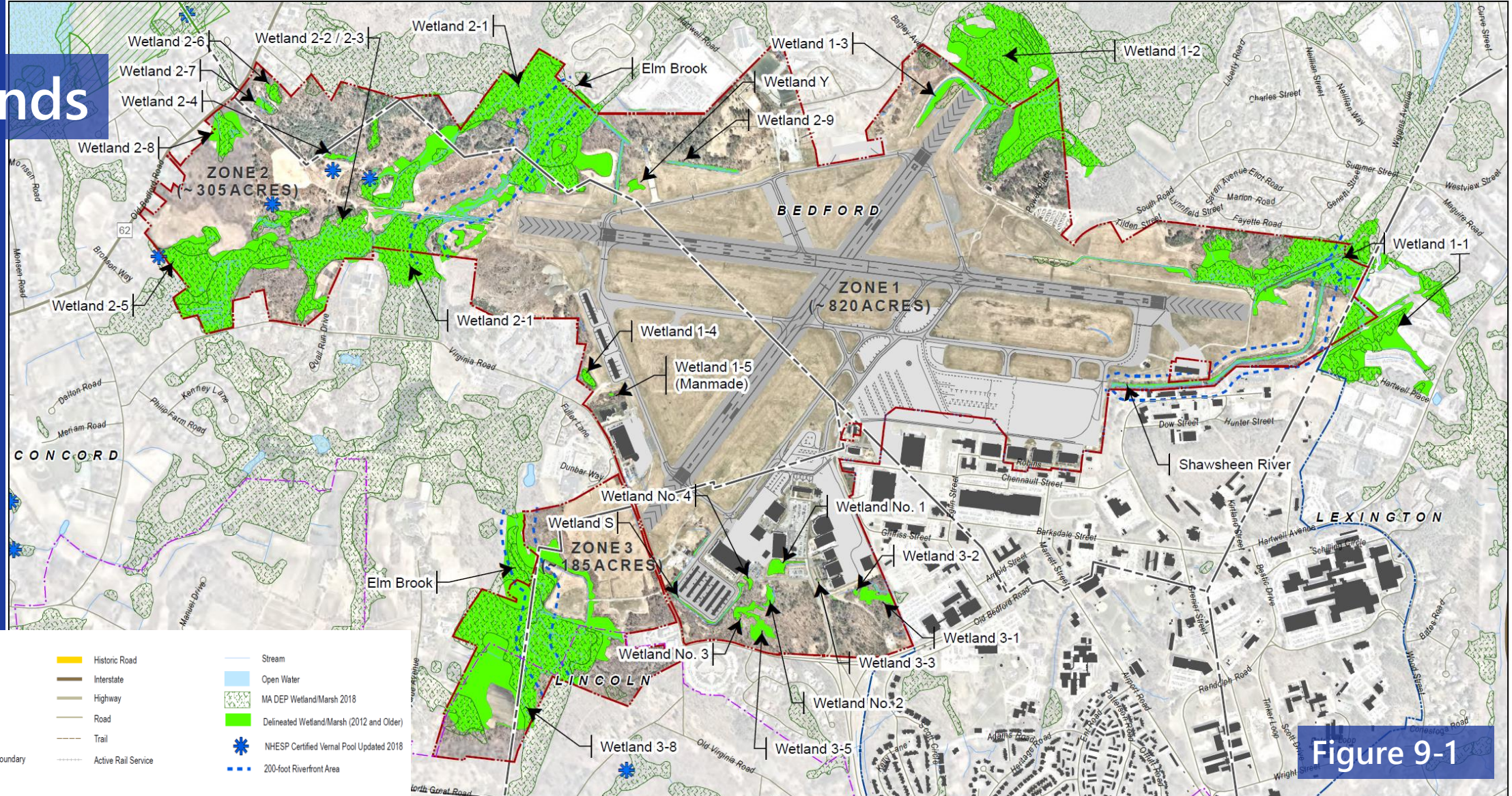


Figure 9-1

L.G. Hanscom Field 2017 ESPR



# Rare Species Habitat

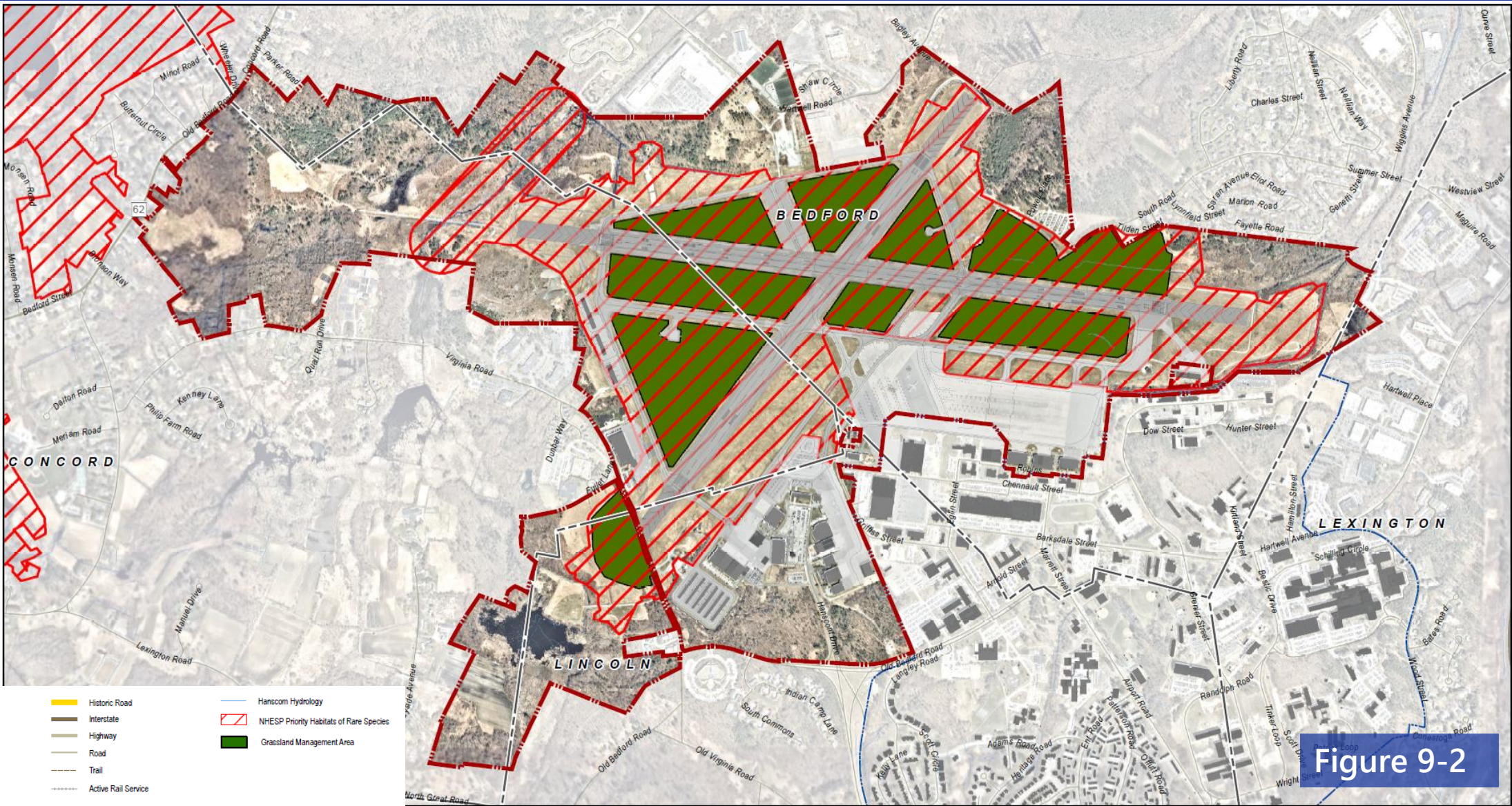


Figure 9-2





# Stormwater Management

- National Pollutant Discharge Elimination System (NPDES) Multi-sector General Permit For Stormwater Discharges Associated With Industrial Activity (MSGP)
- Applied for current MSGP in 2009 and was reissued in 2015; valid for five years
- Covers Hanscom Field and its tenants
- Stormwater Pollution Prevention Plan (SWPPP) part of MSGP



# Cultural and Historic Resources

## ESPR Chapter 10



# Cultural and Historic Resources

## Chapter 10:

- Reviews the existing data on historic and archeological resources located at and near Hanscom Field
- Presents information about the MMNHP and historic properties in the park
- Evaluates the potential effects of traffic, air quality and noise on historic and cultural sites currently and in future planning scenarios



# Key Findings

- No historic resources are exposed to noise of DNL 65 dB in 2017.
- No changes to historic resources within the MMNHP; one survey area and one local landmark new properties have been added in the vicinity since 2012.
- The 2035 forecast scenario shows fewer cultural and historic resources within the DNL 55 dB noise contour than was forecast for 2030 in the *2012 ESPR*.
- Impacts to cultural and historic resources from traffic and air quality have decreased since 2012.



# Historic Resources MMNHP

## Battle Road Unit

- Meriam's Corner Monument (MM-8)
- Meriam House (MM-9)
- Historic Farming Fields (MM-10)
- Olive Stow House (MM-11)
- Samuel Brooks House (MM-12)
- Noah Brooks Tavern & Carriage House (MM-13)
- Job Brooks House (MM-14)
- Joshua Brooks, Jr. House (MM-15)
- Bloody Angle (MM-16)
- Ephraim Hartwell Tavern (MM-17)
- Sgt. Samuel Hartwell House (MM-18)
- Capt. William Smith House (MM-19)
- Paul Revere Capture Site & Marker (MM-20)
- Mile Three Location (MM-21)
- John Nelson House and Barn (MM-22)
- Josiah Nelson, Jr. House Foundation (MM-23)
- Thomas Nelson, Jr. House Foundation (MM-24)
- Parkers Revenge (MM-25)
- Minute Man Visitor Center (MM-26)
- Jacob Whittermore House (MM-27)
- The Bluff & Monument (MM-28)
- Mile Four Location (MM-29)



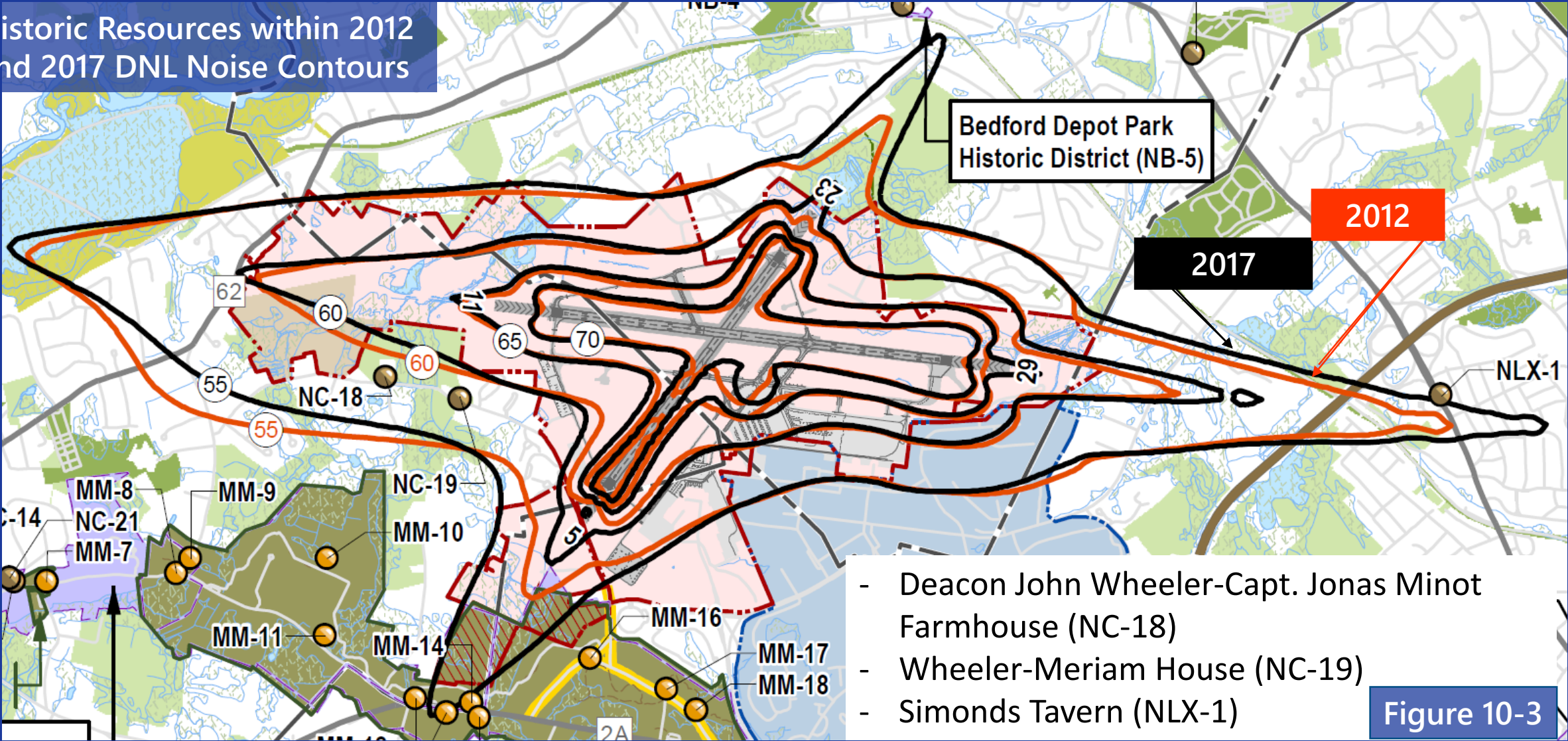
# Historic Resources MMNHP

## The Wayside, North Bridge and Barrett Farm

- Maj. John Buttrick House (MM-1)
- NPS Headquarters and Visitor Center (MM-2)
- North Bridge Comfort Station (MM-3)
- The Minute Man Statue (MM-4)
- North Bridge (MM-5)
- Old Manse (MM-6)
- Col. James Barrett House & Farm (MM-31)



Historic Resources within 2012 and 2017 DNL Noise Contours



- Deacon John Wheeler-Capt. Jonas Minot Farmhouse (NC-18)
- Wheeler-Meriam House (NC-19)
- Simonds Tavern (NLX-1)

Figure 10-3



# Historic Resources within 2012, 2017, 2025, & 2035 DNL Contours

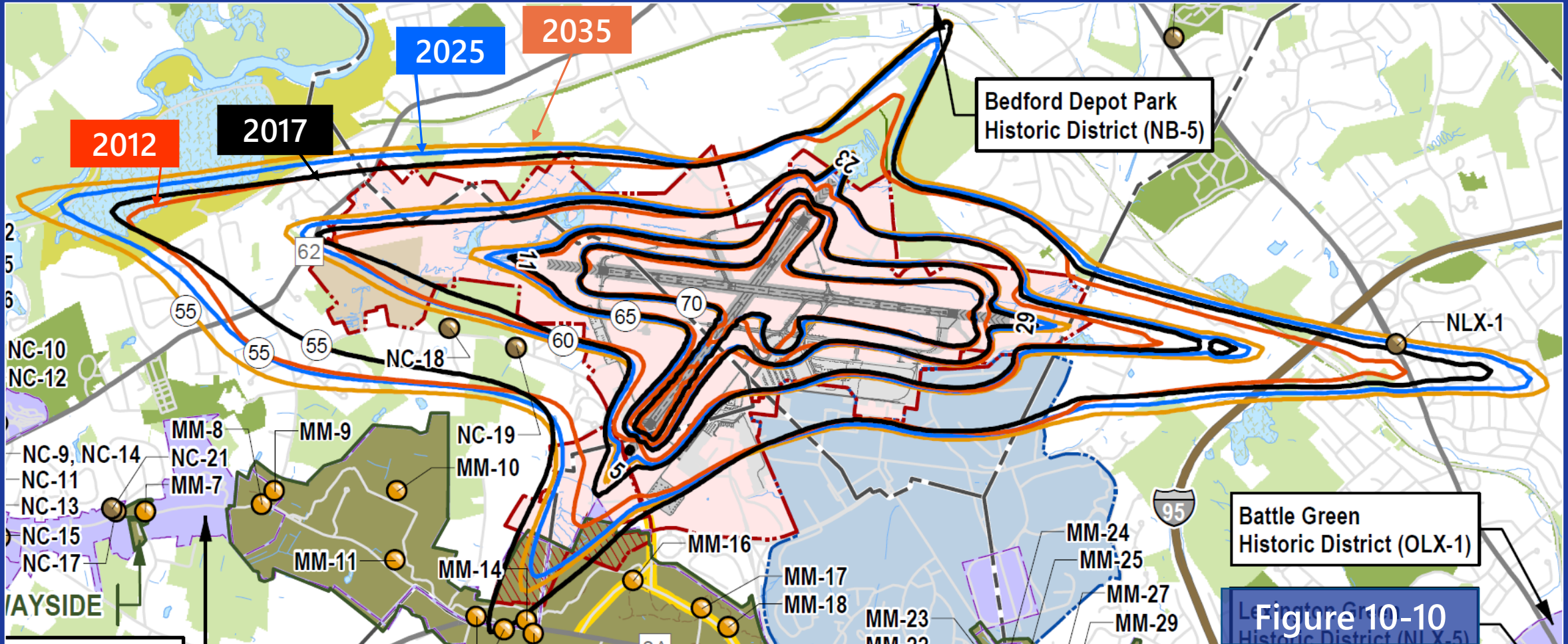


Figure 10-10

# No Cultural and Historic Properties/Geographic Areas within 65 DNL Contour in 2017 or Future Years

Resource	Total Quantity	2012	2017	2025	2035
National and State Registers Individual Properties	41 properties	0 properties	0 properties	0 properties	0 properties
National and State Register Historic Districts	1,646 acres	0 acres	0 acres	0 acres	0 acres
Minute Man National Historical Park	975 acres	0 acres	0 acres	0 acres	0 acres
Battle Road Interpretive Trail	4 miles	0 miles	0 miles	0 miles	0 miles



# Sustainability and Environmental Management ESPR Chapter 11



# Sustainability & Environmental Management

- Reports on Massport's sustainability practices at Hanscom Field
- Provides information on the Environmental Management System (EMS)
- Provides information on the sustainable design and development approaches for new and existing facilities
- Environmentally beneficial measures, parties responsible, costs and schedule for implementation of these measures





# Key Findings

- 2017: Massport reviewed and improved its Flood Operations Plan and recently developed a resiliency software application to help prepare for, respond to and recover from severe weather impacts.
- 2018: Massport expanded the scope of the Sustainability and Resiliency Report to include all of its facilities, including Hanscom Field.
- 2018: Massport updated its Sustainability and Resiliency Design Standards and Guidelines (SRDSG).
- Massport encourages that all new development, including development at Hanscom and by its tenants, meet the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Silver certification requirements.



# Massport continues to meet the ISO 14001 standard for its Environmental Management System



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## CERTIFICATE

The Certification Body of  
TÜV SÜD AMERICA INC.

hereby certifies that

**Massachusetts Port Authority  
L.G. Hanscom Field  
200 Hanscom Drive  
Bedford, MA 01730 USA**

has implemented an Environmental Management System  
in accordance with:

**ISO 14001:2015**

The scope of this Environmental Management System  
includes:

**Operation of a General Aviation Airport**

Certificate Expiry Date: May 19, 2022

Certificate Registration No: 951 00 0955

Effective Date: May 20, 2019

Reissue Date: N/A



*Mark Alpert*  
Mark Alpert  
Vice President, Business Assurance



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L.G. Hanscom Field 2017 ESPR



# Sustainability Achievements



- 222 solar panels (51 kW capacity) on Hanscom's Civil Air Terminal;
- Massport's Airport Rescue & Firefighting (ARFF) and United States Customs and Border Protection (USCBP) facility is designed to LEED Gold standards;
- Jet Aviation's new hangar and fixed-base operator (FBO) facility is built to LEED Silver standards, incorporating sustainable design elements such as high efficiency condensing boilers and LED lighting;
- Boston MedFlight's recently constructed hangar and corporate headquarters facility is designed to LEED Silver standards including a 200 kW rooftop solar PV system designed to supply all facility electricity needs and use of daylighting.
- All major tenants at Hanscom have a recycling program to redirect a portion of their facility waste from landfills.

# How to provide feedback

- Electronic version of the document and technical appendices can be found here:  
<http://www.massport.com/massport/about-massport/project-environmental-filings/hanscom-field/>
- The public information meeting will take place on Tuesday, June 11, 2019 at 6:30 PM
- The public comment period is open until July 11, 2019. Submit comments electronically here:  
<https://eeaonline.eea.state.ma.us/EEA/PublicComment/Landing/> . Written comments may be submitted to the following address:

Secretary Kathleen Theoharides  
Executive Office of Energy and Environmental Affairs  
Attention: MEPA Office  
Alex Strysky, EEA No. 5484/8696  
100 Cambridge Street, Suite 900  
Boston, MA 02114





# Question and Answer Session

